Interconnection: When Bad Things Happen to Good Projects

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Index

Introduction to Encorp

ENCORP VISION STATEMENT

To be recognized as the world's leading provider of network technology and infrastructure-management solutions for the distributed energy market.

ENCORP MISSION STATEMENT

To develop and implement real-time, distributed energy-focused solutions for a wide range of applications through innovative products and services, which are technology-neutral, easily networked, supported 24/7 and deliver high-level, enterprise-wide functionality for our clients' growing needs.

WHAT DO WE DO?

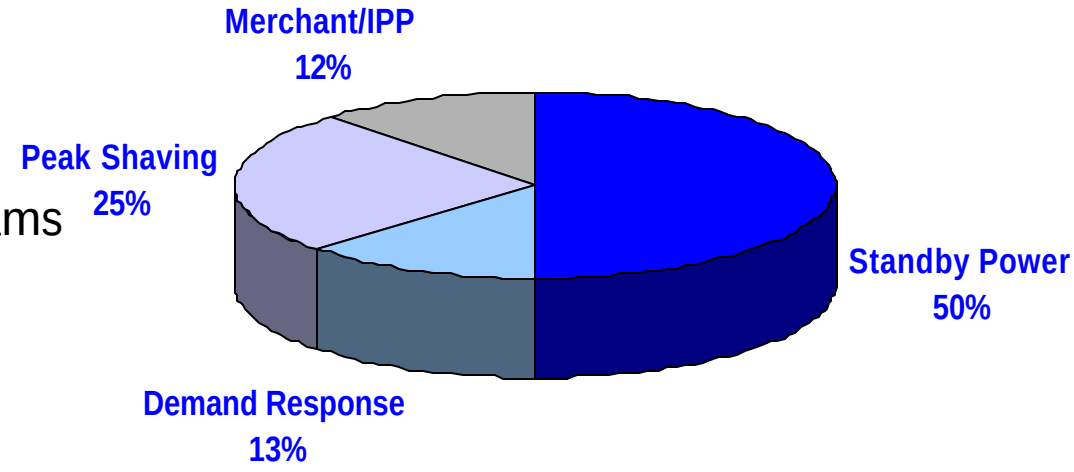
We develop and market software and hardware technology solutions for the communication, control, and networking of distributed energy.

Encorp Metrics

✓ Incorporated	1994
✓ Approximate number of employees	100
✓ Total MW controlled by Encorp	560+
✓ Number of GPCs shipped	1,338
✓ Percentage of Projects Interconnected	95%[1]
✓ Total number of customers	172

✓ Breakdown of projects by application

- Standby power
- Peak shaving
- Merchant/IPP
- Demand response programs
  - Interruptible rates
  - Time of use rates
  - Peak sharing



[1] in the past 2 years

Index

Case Study: Interconnection in Downtown Chicago

Background

- ✓ **ComEd serves the majority of the population in Illinois including the entire metropolitan Chicago area**
- ✓ **The public utility commission (PUC) in Illinois has not issued interconnection guidelines**
- ✓ **ComEd has interconnection guidelines for onsite generation**
- ✓ **ComEd has a billing experiment on file with the PUC allowing ESPs to place up to 30 MW on the ComEd side of the meter**
- ✓ **A new City ordinance requires onsite generation in buildings taller than 300 feet – standby power to serve emergency loads (lights, pumps etc.)**
- ✓ **The City's energy plan calls for the creation of a 10 MW "Virtual Power Plant"**

Project #1: A Commercial Building Owner Seeks to Installs DG to Meet the New City Code

Project
✓ The City of Chicago requires emergency generators in all structures taller than 300 feet
✓ The building owner seeks to install a 1 MW diesel
✓ ComEd interruptible rates can contribute $175,000 to the project
✓ Due to the design of the physical structure, the optimal method to capture interruptible value is via interconnection

Site

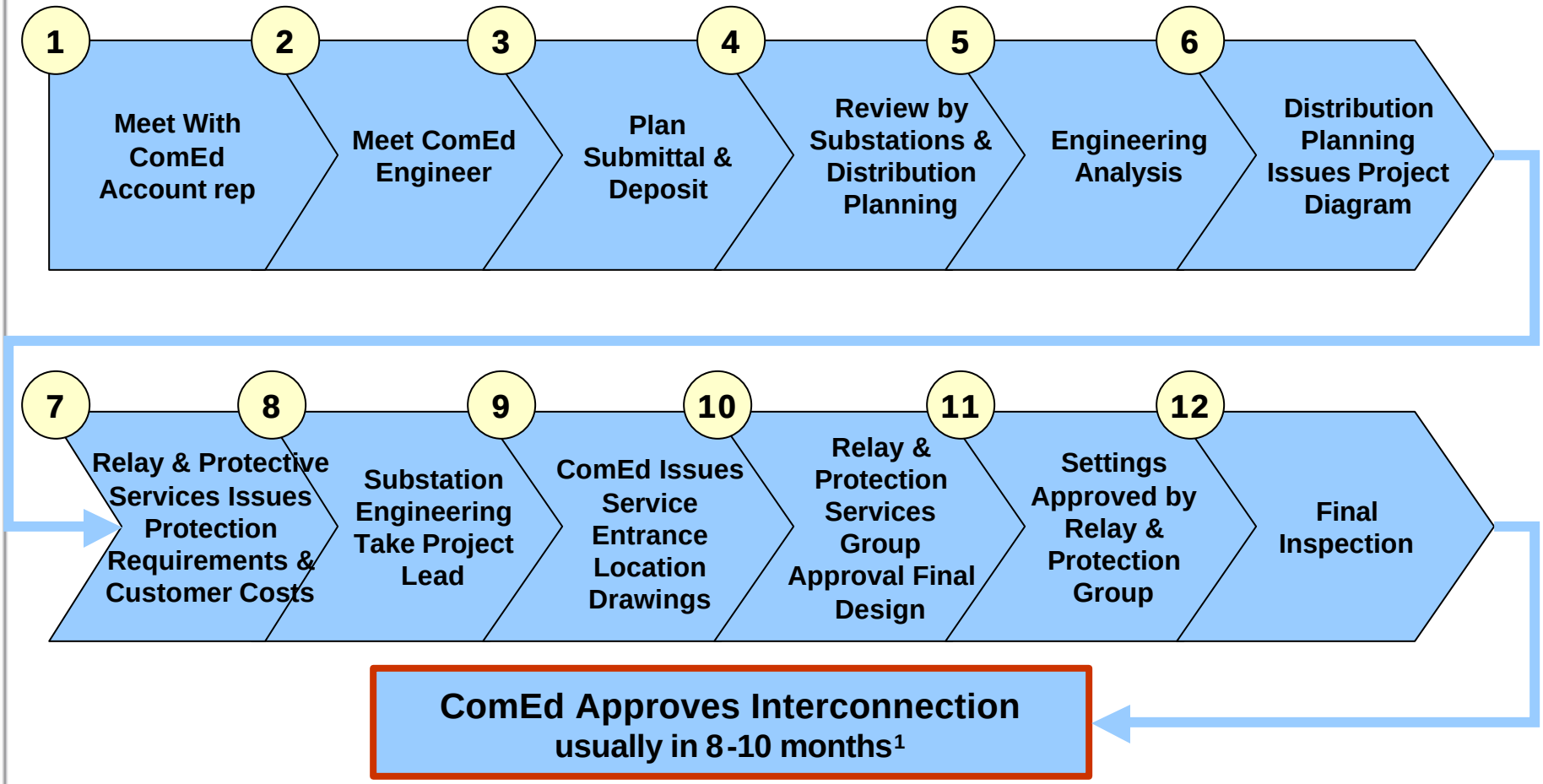
Project #2: ComEd to Install 3 MW of DG on Their Side of the Meter

Project
✓ ComEd Innovative Energy Solutions is the project developer
✓ Backup generation to support roof antennas
✓ Gensets placed at or near grade level
✓ In many tall buildings, ComEd owns the risers
✓ The new billing experiment provides the legal basis to put DG behind the meter

Site

ComEd's DG Interconnection Guide:
Process – Typical for Many Utilities

ComEd Controls Process Timetable



[1] ComEd begins its tracking timetable after step 3 and estimates that that steps 4 through 12 take 6 to 8 months.

ComEd's DG Interconnection Guide: *End-User Costs*

ComEd Controls Cost to Consumer

Project Size*	ComEd Plan	ComEd's Fee **	Total Project Cost Estimate
25 – 2,500 kVA	Plan A	$2,500	$75,000+
2,500 – 10,000 kVA	Plan B	$55,000 – $80,000	$75,000 – $180,000+
Greater than 10,000 kVA	Plan C	$120,000 – $140,000	$180,000 – $240,000+

* Dependant on the feeder – ComEd selects the plan & costs associated with the plan based on amount of DG in aggregate connected to a feeder.

* * For ComEd's review only – does not include protective equipment & customer engineering costs. Price points supplied by ComEd.

Not Mentioned in the ComEd DG Interconnection Guide . . . .

Interconnection is Not Allowed in the Loop

Net Results

In Areas That Are Critically Short of Power Reliability, Utilities Have Conspicuously & Consciously Barred Customers From Using DG to Improve Reliability

Project Results	
Project #1	**Project #2**
✓ Installed an emergency backup generator in isolation from the grid	✓ ComEd Systems Protection Group will not let ComEd Innovative Energy Solutions interconnect
✓ Forfeited ComEd's payments of $175,000	✓ Project is stalled
✓ Despite the City's ordinance as the project catalyst, the site is not part of 10 MW "Virtual Power Plant"	✓ The billing experiment allowing DG on the ComEd side of the meter has gone unused

Next Steps – Addressing the Ongoing Challenges

A fair and judicious framework is required to balance the needs of an energy delivery firm with those promoting onsite generation.

Challenge #1	**Regulatory**
Challenge #2	**Contractual / Tariffs**
Challenge #3	**Business practices**